SPHENIX EMCAL Update

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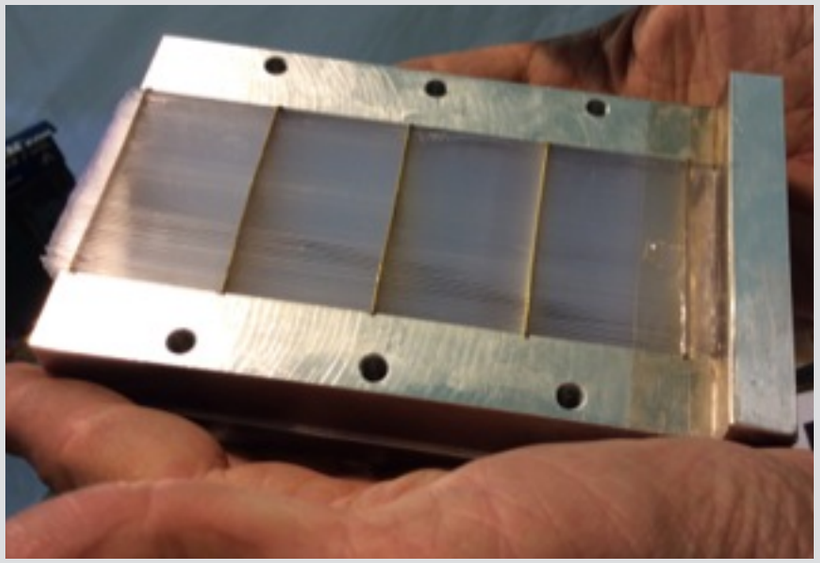
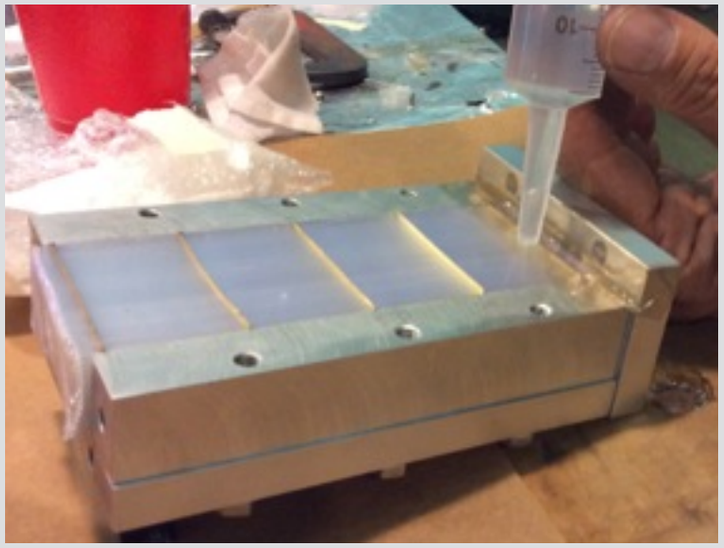
Outline of the Presentation

- Update on new modules: comparison of two new modules and final density measurements
- 2D meshes: progress with filling the projective meshes

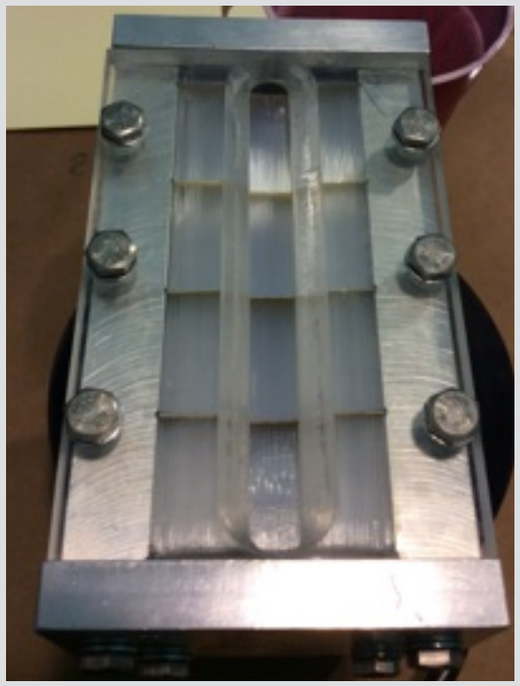
EMCAL Module 1



aluminum mold used



epoxy added to the ends

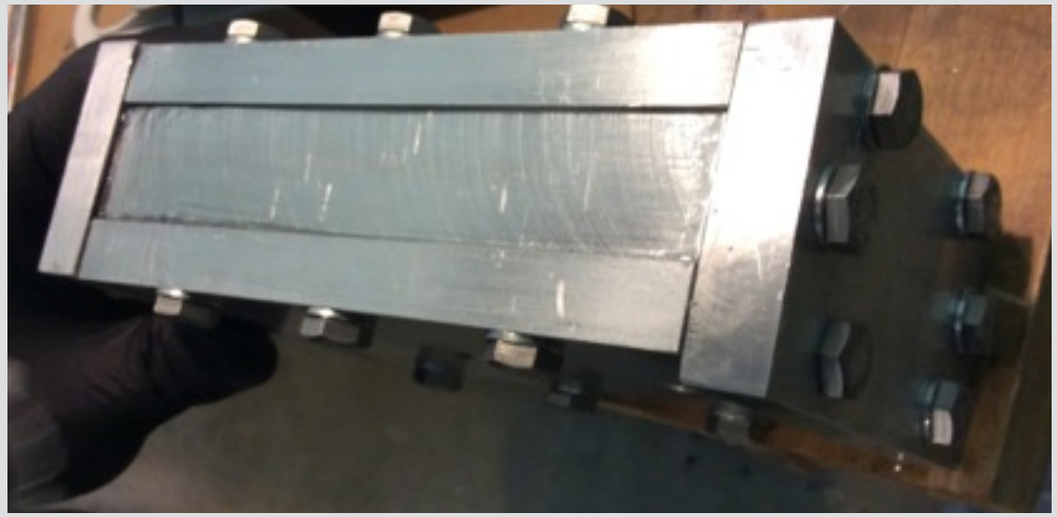


clear top for filling tungsten

clear top removed after filling

EMCAL Module 1

mold release used before
filter sheets added



mold ready for epoxy

EMCAL Module 1: filling epoxy

epoxy fed through from the bottom of the mold, the ports on the top are for pulling the epoxy through

bottom port was blocked

syringes used at the top & vacuum pump to pull the epoxy through the mold

EMCAL Modules

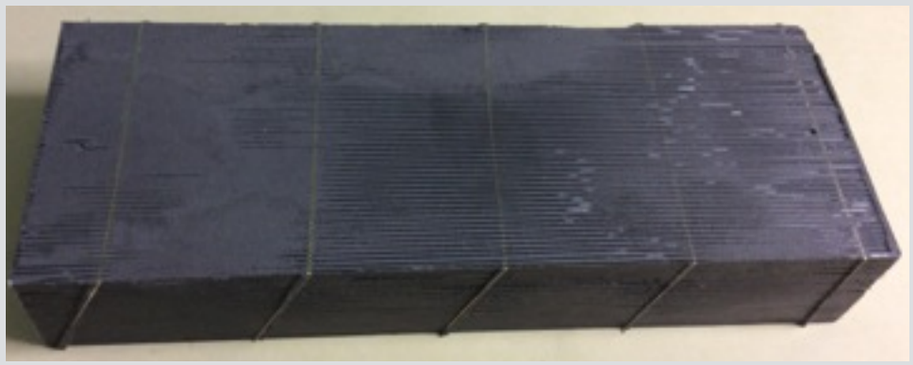
Module 1

bottom surface

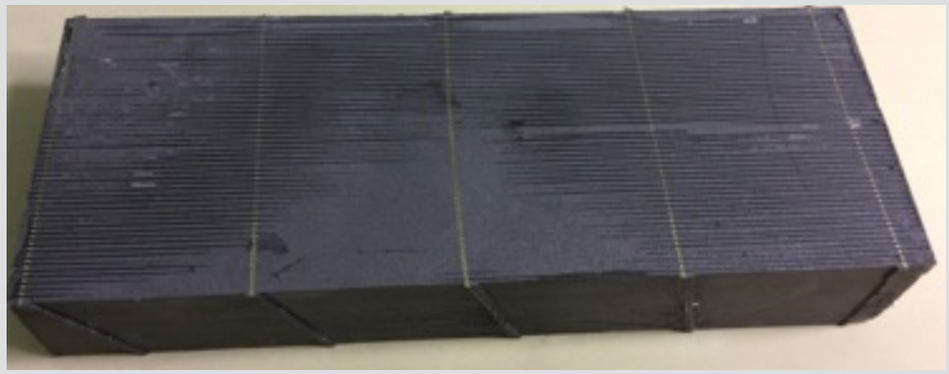
top surface

The voids occurred due to the epoxy being blocked from one of the bottom ports.

Module 2



bottom surface



top surface

The epoxy was added to the module from the top surface without the lid and the epoxy was drained into the module. The final module was machined with the diamond cutter.

EMCAL Modules Comparison

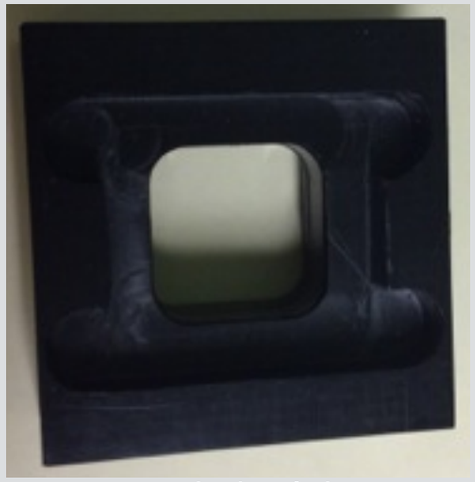
Module 1

- epoxy filled by draining in the epoxy from funnels and using syringes/vacuum to pull the epoxy through
- both ends were epoxied (wait 24 hours for each end)
- voids created due to problems with blocked ports
- total overall density: density=1564.2g/227.15cm^3 = **6.88 g/cm^3**

Module 2

- epoxy filled from the top without the lid, and drained down (no vacuum pump used)
- ends were not epoxied
- no voids created
- total overall density: density=1505g/195.25cm^3 = **7.7 g/cm^3**

Testing the 2D mesh Filling



mesh holder

shims are added between the meshes to guide the fibers

100x100 R350 ← **1 shim**

99x99 R350 ← **1 shim**

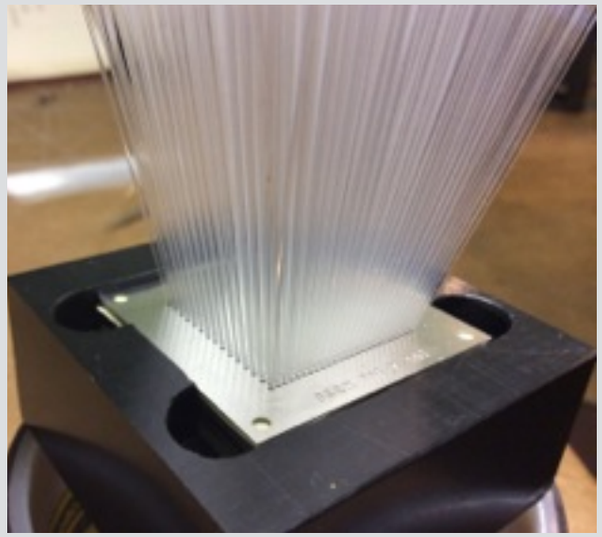
98x98 R350 ← **2 shims**

96x96 R350 ← **2 shims**

94x94 R300 ← **2 shims**

92x92 R300 ← **2 shims**

90x90 R300



close up of the filled meshes

view of the meshes from the top

holder removed to see the fibers are untwisted